

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listing, of claims in the application:

Claim 1. (previously presented) An isolated nucleic acid sequence which encodes a polypeptide with desaturase activity, selected from the following group:

- a) a nucleic acid sequence with the sequence shown in SEQ ID NO: 1,
- b) nucleic acid sequence which, as a result of the degeneracy of the genetic code, are derived from the nucleic acid sequence shown in SEQ ID NO: 1,
- c) derivatives of the nucleic acid sequence shown in SEQ ID NO: 1 which encode polypeptides with the amino acid sequence shown in SEQ ID NO: 2 and which have at least 90% homology at amino acid level without reducing the enzymatic activity of the polypeptides to less than 10% of the activity of the polypeptides with the amino acid sequence shown in SEQ ID NO: 2.

Claims 2-3 (canceled)

Claim 4 (previously presented). A nucleic acid construct comprising the nucleic acid sequence as claimed in claim 1, where the nucleic acid sequence is linked to one or more regulatory sequences.

Claim 5 (previously presented). A nucleic acid construct comprising the nucleic acid sequence as claimed in claim 1, wherein the nucleic acid sequence is linked to one or more regulatory sequences.

Claim 6 (previously presented). A vector comprising the nucleic acid sequence as claimed in claim 1 or a nucleic acid construct comprising said nucleic acid sequence linked to one or more regulatory sequences.

Claim 7 (previously presented). The non-human organism as claimed in claim 6, which is a plant, a microorganism or an animal.

Claim 8 (previously presented). A transgenic plant comprising the nucleic acid sequence as claimed in claim 1, wherein said nucleic acid sequence a nucleic acid construct comprising said nucleic acid linked to one or more regulatory sequences.

Claim 9 (previously presented). A process for the preparation of saturated or unsaturated fatty acids, which comprises introducing the nucleic acid sequence as claimed in claim 1 or a nucleic acid construct comprising said nucleic acid linked to one or more regulatory sequences into an organism, growing this organism, isolating oil contained in the organism and liberating fatty acids contained in the oil.

Claim 10 (previously presented).

Claim 11 (canceled)

Claim 12 (previously presented). A process for the preparation of triglycerides with an increased content of saturated fatty acids, which comprises introducing the nucleic acid sequence as claimed in claim 1, wherein said nucleic acid sequence is a nucleic acid construct comprising said nucleic acid linked to one or more regulatory sequences into an organism, growing this organism and isolating oil contained in the organism.

Claim 13 (previously presented). The process as claimed in claim 9, wherein the unsaturated fatty acid has an increased calendulic acid content.

Claim 14 (previously presented). The process claimed in claim 9, wherein the organism is one of a plant and a microorganism.

Claims 15-23 (canceled)

Claim 24 (previously presented). The isolated nucleic acid sequence which encodes a polypeptide with desaturase activity of claim 1, wherein said derivatives of the nucleic acid sequence shown in SEQ ID NO: 1 which encode polypeptides with the amino acid sequence shown in SEQ ID NO: 2 and which have at least 90% homology at amino acid level without reducing the desaturase activity of the polypeptides to less than 20% of the desaturase activity of the polypeptides with the amino acid sequence shown in SEQ ID NO: 2.

Claim 25 (previously presented). The isolated nucleic acid sequence which encodes a polypeptide with desaturase activity of claim 1, wherein said derivatives of the nucleic acid sequence shown in SEQ ID NO: 1 which encode polypeptides with the amino acid sequence shown in SEQ ID NO: 2 and which have at least 90% homology at amino acid level without reducing the desaturase activity of the polypeptides to less than 30% of the desaturase activity of the polypeptides with the amino acid sequence shown in SEQ ID NO: 2.

Claim 26 (previously presented). The isolated nucleic acid sequence which encodes a polypeptide with desaturase activity of claim 1, wherein said derivatives of the nucleic acid sequence shown in SEQ ID NO: 1 which encode polypeptides with the amino acid sequence shown in SEQ ID NO: 2 and which have at least 95% homology at amino acid level without reducing the desaturase activity of the polypeptides to less than 20% of the desaturase activity of the polypeptides with the amino acid sequence shown in SEQ ID NO: 2.

Claim 27 (currently amended). The isolated nucleic acid sequence which encodes a polypeptide with desaturase activity of claim 1 wherein said polypeptide causes a

regiospecific shift of a *cis* double bond in position C9 to a *trans* double bond in position C10 and introduces a *trans* double bond at position C8.

Claim 28 (previously presented). An isolated nucleic acid comprising SEQ ID NO: 1.

Claims 29-30 (canceled)